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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Alain Benayoun

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02/16/2005

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AUSTIN, TX 78759

EXAMINER

KHUONG, LEE T

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

6X

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/920,683	BENAYOUN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Lee Khuong	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-18 and 22-32 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 19-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/8/01 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because of the unlabeled rectangular box(es) 20, 22, 24 and 26 shown in the drawings of Fig. 1 should be provided with a labeled descriptive text labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 32 is objected to because of the following informalities: --to Claim 32--, line 1, should be changed to "to Claim 31" for proper claim dependency. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 recites the limitation "said coupled LAN adapter" in line 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, 6, 8, 11, 17-18, 22, 24 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Kao et al. (US 6,535,513) hereinafter referred as Kao.

**Regarding claims 1 and 17,** Kao teaches a Multimedia and Multi-Rate Switching method and apparatus. Kao teaches a hub (Fig. 2, 102, *a switch*) including a plurality of local

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area network (LAN) adapters (Fig. 2, 202, 204, *NMC1 and NMC2, respectively, narrowband line cards*); an asynchronous transfer mode (ATM) crossbar switch (Fig. 2, 208, *a cell switching fabric*) coupling said plurality of LAN adapters (see col. 3, lines 1-11, *the NMC1 and NMC2 receive and transmit packets with the cell switching fabric 208*); said plurality of LAN adapters including at least a requesting LAN adapter (Fig. 8, 802, *receiving cell block*) and at least a destination LAN adapter (Fig. 8, 804, *transmitting cell block*), wherein each of said LAN adapters including: a serial communication controller (Fig. 2, 212, *SCC, switch control card*) (see col. 3, lines 30-36), further includes: means for converting a LAN data frame into serial data (see Fig. 6, 614, *multi-service engine to convert IP packets/Frames to ATM cells*) implemented as concatenated slots of an ATM cell size in high-level data link control (HDLC) format before transmitting said serial data to said ATM crossbar switch (see col. 11, lines 54-67, col. 12, lines 1-3, *packets and frames received from input via attached IP/Frame Relay networks are usually converted to serially concatenated ATM cells prior to being forward to cell switching fabric 208 in Fig. 2*); means for converting said serial data (see Fig. 6, 614, *multi-service engine to convert IP packets/Frames to ATM cells*) implemented as concatenated ATM cells received from said ATM crossbar switch into said LAN data frame before transmitting said LAN data frame (see col. 11, lines 65-67, col. 12, lines 1-3, *ATM cells received from the cell switching fabric 208, Fig. 2, are converted to packets or frames prior to being transmit to IP/Frame Relay networks*); and a plurality of local area networks (LANs) (see Fig. 2, 202, 204, *NMC1 and NMC2 are examples of interfaces that are capable of connecting to multiple LANs such as: PSTN, ATM and IP*), including at least a requesting LAN (Fig. 8, 802, *receiving cell block*) and at least a destination LAN (Fig. 8, 804, *a cell transmit block*), coupled to said hub via said

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requesting LAN adapter and said destination LAN adapter (see Fig. 2, 206, *a local switch module is coupled to ATM switch 102 via NMC1 202/requesting LAN adapter and NMC2 204/destination LAN adapter*).

**Regarding claims 2 and 18,** Kao teaches said LAN adapter further includes: a control logic (Fig. 8, 808, *a command processor*) for generating a request signal (REQ) to said ATM crossbar switch when said requesting LAN adapter requests transfer of at least a LAN data frame to said destination LAN adapter (see col. 13, lines 22-27, col. 15, lines 55-63, *the command processor generates signal for load requests to cell receive block 802, then host port interface 814 is responsible for arbitrating and then forwards to its egress port*).

**Regarding claims 6 and 22,** Kao teaches said serial communication controller further includes: means for generating a high-level data link control (HDLC) frame, in response to receiving said LAN data frame said requesting LAN coupled to said requesting LAN adapter before transmitting said HDLC frame to said ATM crossbar switch (see col. 11, lines 54-67, col. 12, lines 1-9).

**Regarding claims 8 and 24,** Kao teaches serial communication controller further includes: means for converting a high-level data link control (HDLC) frame received from said ATM crossbar switch into said LAN data frame to be transmitted to said destination LAN adapter (see col. 11, lines 54-67, col. 12, lines 1-9).

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**Regarding claims 11 and 27**, Kao teaches wherein each of said plurality of LAN adapters further includes: a LAN controller (Fig. 6, 618, *HDLC controller*) for converting said LAN data frame received in serial form from said requesting LAN coupled to said coupled LAN adapter into parallel data bytes (see col. 11, lines 54-67, col. 12, lines 1-3).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7, 9-10, 12-14, 23, 25-26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kao in view of Hey et al. (US 6,826,187 B1) hereinafter referred as Hey and further in view of Wallace (US 6,252,887 B1).

**Regarding claims 7 and 23**, Kao teaches said generating means in said serial communication controller set forth in the rejection of claims 2 and 18.

Kao does not teach expressly means for serializing a plurality of incoming parallel data bytes; means for computing a frame check sequence (FCS) after said plurality of incoming parallel data bytes; means for generating a high-level data link control (HDLC) flag to start said HDLC frame and means for generating another said HDLC flag to end said HDLC frame.

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Hey teaches means for serializing a plurality of incoming parallel data bytes (see Fig. 1, 110, *a SCC*, col. 3, lines 23-50, *a mean for converting parallel data to serial data and serial data to parallel data*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the SCC of Hey with SCC of Kao for providing a packet/frame conversion to ATM cell format to be able to transmit data in an ATM switch.

The suggestion/motivation for doing so would have been to provide network compatibility in a telecommunication network.

Wallace teaches means for computing a frame check sequence (FCS) after said plurality of incoming parallel data bytes (see col. 3, lines 48-65, *a frame relay includes a FCS field*); means for generating a high-level data link control (HDLC) flag to start said HDLC frame (see Fig. 6, A, a HDLC start flag, col. 5, lines 12-13, *at time A, an HDLC flag is added to an output cell 61 to delimit a start of the frame*) and means for generating another said HDLC flag to end said HDLC frame (Fig. 6, L, a HDLC end flag, col. 5, lines 44-50, *at time L, an end-of-flag is encountered and decoded*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the delimiter start and end flags of a frame and the FCS field of Wallace within the ATM switch of Kao for ensuring the transmission of a frame between frame relay and ATM networks and thus guarantee high-speed, low-error rate data communications.

The suggestion/motivation for doing so would have been to provide transparent communication between a frame relay and an ATM network (see col. 2, lines 4-6).



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**Regarding claims 9 and 25**, Wallace teaches means for detecting a starting high-level data link control (HDLC) frame in an incoming HDLC frame (see col. 5, lines 14-22, *means for detecting starting of an HDLC frame*); means for checking the data integrity of said HDLC frame by computing a frame check sequence (FCS) (see col. 3, lines 48-65).

Hey teaches means for deserializing a plurality of data bits of said HDLC frame to provide a plurality of data bytes in said LAN data frame (see Fig. 1, 110, **the SCC**, col. 3, lines 23-50, *a mean for converting parallel data to serial data and serial data to parallel data*).

**Regarding claims 10 and 26**, Kao, Wallace and Hey teach the transmission system set forth in the rejections of claims 9 and 25. Kao teaches a memory (Fig. 6, 612, *multiple queues*).

Kao does not teach expressly a memory divided into at least two independent areas, a first LAN-to-switch area organized in a first plurality of buffers for storing said LAN data frame received from a LAN coupled to said LAN adapter to be transmitted to another LAN, and a second switch-to-LAN area organized in a second plurality of buffers for storing said LAN data frame received from another LAN.

Kao does teach that a plurality of LAN adapters (Fig. 1, 202, *NMC1* and 204, *NMC2*). Kao's LAN adapters are capable of connecting to PSTN or ATM or IP or frame relay networks. As a result, the NMC1 might be connecting to an IP network and the NMC2 might be connecting to a frame relay network and each of Kao's LAN adapters contains a memory (Fig. 6, 612, *multiple queues*). Thus satisfy claims 10 and 26 for connecting to two different LANs and to store/receive LAN data in a plurality of buffers (*multiple queues*) or to be transmitted to another

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LAN (see col. 16, lines 30-35).

**Regarding claims 12 and 28**, Kao teaches wherein said LAN controller further includes: a clock circuit (Fig. 4, 450, *a 50mhz clock to synchronize operation of data conversion*) for synchronize operation of said LAN controller (see col. 4, lines 50-67, col. 5, lines 1-20); means for synchronizing said clock circuit during a set of preamble bytes when receiving said LAN data frame (see col. 4, lines 50-67, col. 5, lines 1-20), Kao teaches means for removing a set of protocol information of said LAN data frame (see Fig. 6, 610, *a SAR engine*, col. 11, lines 35-37, *a SAR engine to performs segmentation and reassembly frames and cell forwarding; adding/removing headers and trailers of ATM protocol*).

Wallace teaches means for detecting said LAN data from incoming through a delimiter byte of said frame (see col. 5, lines 14-22, *means for detecting starting of an HDLC frame*); means for checking data integrity of said LAN data frame by computing a set of frame check sequence (FCS) bytes (see Fig. 4, col. 3, lines 48-65).

Hey teaches means for deserializing a set of remaining incoming bits of said LAN data frames to provide a set of parallel data bytes (see Fig. 1, 110, *the SCC*, col. 3, lines 23-50, *a mean for converting parallel data to serial data and serial data to parallel data*).

**Regarding claims 13 and 29**, Kao teaches means for generating the protocol information bytes to be included in said LAN data frame (see Fig. 6, 614, *the multi-service engine converts ATM cells back to packets to be forwarded to its attached IP/Frame Relay networks by the packet controller 618*).

Wallace teaches means for computing a frame check sequence (FCS) of said LAN data frame before transmitting said LAN data frame to said destination LAN coupled to said destination LAN adapter (see Fig. 4, col. 3, lines 48-65).

Hey teaches means for serializing a set of incoming data bytes received from said serial communication controller (see Fig. 1, 110, the SCC, col. 3, lines 23-50, *a mean for converting parallel data to serial data and serial data to parallel data*).

**Regarding claims 14 and 30**, Kao teaches an arbiter (Fig. 8, 814, an arbitrating host port interface) for taking care of the contention between requests to send from said LAN controller and requests to send from said serial communication controller (see col. 15, lines 32-37).

9. Claims 15-16 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kao in view of Hey and further in view of Wallace and further in view of Hughes et al. (US 6,747,971 B1) hereinafter referred as Hughes.

**Regarding claims 15 and 31**, Kao, Hey and Wallace teach a data transmission system set forth in the rejections of claims 1 and 17.

Kao, Hey and Wallace do not teach a scheduler for determining whether or not a request to transmit a LAN data frame from a LAN to another LAN should be granted.

Hughes teaches a scheduler (Fig. 3, 316a, *a scheduler*) for determining whether or not a request to transmit a LAN data frame from a LAN (Fig. 3, 304a, *an ingress port that could be connecting an IP network/Frame Relay network*) to another LAN (Fig. 3, 306a, *an output port*

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*that could be connecting to another output IP network/Frame Relay network that is different from the input network coupled to the ingress port 304a*) should be granted (see col. 7, lines 40-58, *a scheduler to determine whether or not a LAN data frame should be transmitted to its destination LAN*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the scheduler of Hughes within the ATM switch of Kao, Hey and Wallace for controlling input/output traffic within an ATM switch to avoid network congestion.

The suggestion/motivation for doing so would have been to provide a reliable communication between a frame relay and an ATM network (see col. 2, lines 4-5).

**Regarding claims 16 and 32**, Hughes teaches wherein said scheduler further includes: an algorithm unit (Fig. 3, 314, *the request controller*) for determining the best data connection to establish at each time based upon the selection of the request amongst all requests received from the LAN adapters which meets predetermined criteria (see col. 10, lines 32-50, *the request controller will identify the cells with head-of-line priority and a generates primary service request*).

#### ***Allowable Subject Matter***

10. Claims 3-5 and 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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***Conclusion***


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

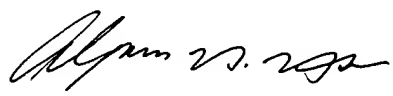
Abensour et al. (5,251,207) ; Kingsley (US 6,560,228 B2) ; Rowett et al. (US 6,560,228 B2); Rowett et al. (5,991,817) are cited to show The System for Transmitting Local Area Network (LAN) Data Frames Through an Asynchronous Transfer Mode (ATM) Crossbar Switch, which is considered pertinent to the claimed invention.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Khuong whose telephone number is 571-272-3157. The examiner can normally be reached on 9AM - 5PM.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Lee T. Khuong  
Examiner  
Art Unit 2665

  
ALPUS H. HSU  
PRIMARY EXAMINER